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Pharmacotheca, Jonathan Ott

SUNDRY VISIONARY COMPOUNDS

dotoxin in the *zombi* phenomenon has been questioned (Anderson 1988; Booth 1988a; Davis 1988b; Davis 1989), and indeed the evidence for this is sketchy. The pharmacognostical aspects of the Haitian *zombi* phenomenon have been explored in a popular book (Davis 1985), which was used as the basis of a sensational science-fiction film. A parallel use of nicotine- and tropane alkaloid-containing *Duboisia myoporoides* as an antidote to ciguatera poisoning from toxic fish was reported from New Caledonia (see section on nicotine below; Dufva *et al.* 1976).

III. IBOGAINE, TABERNANTHINE, VOACANGINE—FROM EBOKA TO SANANHO

One of the most intriguing of the Old World visionary plants is *Tabernanthe iboga*, source of the indole alkaloid ibogaine and related ibogane compounds (Haller & Heckel 1901). *Tabernanthe* is in the Apocynaceae or dogbane family, and ibogaine has also been found in *Tabernanthe pubescens* (Mulamba *et al.* 1981), in *Voacanga schweinfurthii* var. *puberula* (Richard *et al.* 1983), other *Voacanga* species (Hedberg *et al.* 1982); in ten species of the related *Tabernaemontana* genus, including *T. citrifolia* (Abaul *et al.* 1989; Van Beek *et al.* 1984); and is the major alkaloid of the bark of *Tabernaemontana* [also *Scropharyngia*] *crassa* (Batchily *et al.* 1986; Van Beek *et al.* 1985). Ibogaine is also reported from *Daturicarpa elliptica* (Bruneton *et al.* 1976); *Ervatamia orientalis* (Knox & Slobbe 1975); *Pagiantha cerifera* (Bert *et al.* 1989); and *Trachelospermum jasminoides* (Atta-Ur-Rahman *et al.* 1988)—all in the family Apocynaceae—as well as in species of *Alstonia* and *Stenosolen*, in the same family. The closely-related compound voacangine (carbomethoxy-ibogaine) is known from *Tabernanthe iboga* as well as from various species of *Voacanga* (Janot & Goutarel 1955; Richard *et al.* 1983; Thomas & Biemann 1968) and from at least 35 species of *Tabernaemontana* (Van Beek *et al.* 1984). Tabernanthine, a positional isomer of ibogaine, also occurs in *T. iboga*, and this compound is known from two species of *Tabernaemontana* (Van Beek *et al.* 1984). Ibogamine is another constituent of *T. iboga* found in *Voacanga* species (Hedberg *et al.* 1982) and in numerous species of *Tabernaemontana* (Van Beek *et al.* 1984). While ibogaine is considered a principal active agent of *T. iboga*, responsible for its stimulant and visionary properties (Gaignault & Delourme-Houdé 1977), voacangine, tabernanthine and ibogamine have shown properties similar to ibogaine in animal experiments (Bert *et al.* 1988; Zeller *et al.* 1968), and may contribute to the visionary effects of *T. iboga*.

The first report of the use of *Tabernanthe iboga*, or *eboka*, was in 1864, and there were other reports of its use in Gabon and the Belgian Congo as a stimulant and

aphrodisiac (Pope 1969). In 1903 *eboka* was first reported as a visionary plant and the object of a cult in the Congo (Schleiffer 1979; Schultes & Hofmann 1980). A detailed account of the Bwiti cult of *eboka* in Gabon has been published (Fernandez 1972; Fernandez 1982). Initiates to the Bwiti cult drink an infusion of the root bark of *eboka* in massive doses, from 15–50 times the normal threshold dose of 20 grams, the latter thought to contain about 75–125 mg of ibogaine. The initiation dose, said to “break open the head” thus may contain as much as 6.25 grams of ibogaine, and not surprisingly, breaking open the head has resulted in the death of some initiates (Fernandez 1972)! At the lower dose, the drug apparently does not produce visions, but does have a pronounced stimulating effect (Fernandez 1972; Schleiffer 1979). A mushroom called *duna* figures in the mythology of the Bwiti cult, and evidence was recently brought to light suggesting the mushroom is psychoactive and used to induce visions and in sorcery (Samorini 1992c).

While the *Tabernaemontana* species which contain ibogaine and related indole alkaloids have manifold medicinal uses in various parts of the world, they do not seem to have a tradition of use as inebriants, with the exception of *Tabernaemontana coffeoides*, which contains voacangine and is used as a stimulant in Madagascar; *T. muricata* of unknown chemistry (alkaloid-positive) and used as a stimulant in the Colombian Amazon (Schultes 1979a); and *T. dichotoma*, which contains an isomer of iboxygaine, and is known in India as a deliriant drug (Van Beek *et al.* 1984). *Tabernaemontana divaricata* and *T. pandacqui* are used as sedatives and analgesics in traditional Thai ethnomedicine and extracts of various parts of both species have been shown to have sedative and analgesic properties in pharmacological tests (Tacsotikul *et al.* 1989). *Sananho*, a *Tabernaemontana* species, is a known ingredient of South American dart poisons (Bisset 1992a), and under the name *tsicta*, *T. sananho* and other *Tabernaemontana* species are used in Ecuadorian ethnomedicine (Kohn 1992). One of the most intriguing uses of *tsicta* is as a hunting aid, to sharpen the senses. After weathering the initial disagreeable effects of a tea of *tsicta* bark, the user becomes more sensitive and aware (Miller 1993), mirroring the reported effects of “hunter magic” made from skin secretions of toxic frogs (Amato 1992; see Chapter 3). There is evidence that some *Voacanga* species are used as stimulants in Africa (Montgomery 1990). An unidentified *sananho* or *Tabernaemontana* species from Amazonia has been reported as an *ayahuasca* admixture (see Chapter 4; Schultes & Hofmann 1979), together with three other apocynaceous species: *Himatanthus saucuba*, *Malouetia tamaquarina* and *Mandevilla scabra* (Bisset 1992b; Luna 1984b; Luna & Amaringo 1991). An infusion of the leaves of *Tabernaemontana heterophylla* is used as a tonic for elderly people in the Brazilian Amazon region (Schultes 1979a).

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First isolated in 1901, ibogaine saw early, limited medical use as an antidepressant (Furst 1976) and, more recently, psychotherapist C. Naranjo has experimented with the pure compound and with *T. iboga* extracts as an adjunct to psychotherapy. Naranjo found the drug to have certain benefits, particularly in eliciting fantasies and childhood memories (Naranjo 1973a). Because of limited availability, there has been little modern experimentation with ibogaine or *eboka* as a ludibund drug. Stafford has reproduced the account of one modern experimentalist, and mentions that ibogaine seems to have been synthesized on occasion for the U.S. black market, as the drug has appeared in reports of PharmChem Laboratory's "street-drug" analysis service (Stafford 1983), although this probably involved isolated, and not synthetic, material. The lack of availability of ibogaine did not deter the U.S. government from illegalizing the compound, currently listed on Schedule I, along with LSD, DMT, psilocybine and others. Recently, supplies of imported *Tabernanthe iboga* root have been available on the black market of the Pacific coast of the United States, and tinctures of *eboka* root have found a place in European phyto-medicine, sold over the counter in pharmacies as homeopathic remedies. Ibogaine has been suggested as therapy for opiate addiction, a dubious proposition.

IV. NICOTINE, TOBACCOS AND *PITURI*

Nicotine, the active and addictive principle of the ubiquitous tobacco, is not generally thought of as an inebriant capable of inducing visions. The low nicotine content of modern pre-rolled cigarettes, indeed, is insufficient for visionary experiences, sufficing only to provide mild stimulation to the smoker, and relief from the withdrawal symptoms occasioned by tobacco addiction (Byrne 1988; Schelling 1992). Nevertheless, tobacco was the shamanic inebriant *par excellence* throughout the Americas, and *Nicotiana tabacum* (source of modern cigarette, cigar and pipe tobaccos) and *N. rustica* (used in *bidis*) were the most important species. According to tobacco expert J. Wilbert, in Amazonia "*Nicotiana* figures as a transformation agent side by side with *Aradenanthera*, *Banisteriopsis*, *Trichocereus pachanoi* (San Pedro cactus), and *Virola* in the were-jaguar complex and lycanthropy in general." Moreover, tobacco preparations are one of the most common and widespread additives to entheogenic *ayahuasca* brews (see Chapters 1, 3 and 4), and many shamans, like those of the Záparo tribe "take *ayahuasca*... to see better but believe that their true power derives from tobacco" (Schultes & Hofmann 1979; Schultes & Raffauf 1990; Wilbert 1987). Ingestion of tobacco is an integral part of shamanic